

04-25-07

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Teruhiko Hagiwara	Art Unit:	2859
Serial No.:	09/803,819	Patent No.:	7,135,862 B2
Filed:	March 12, 2001	Issued:	November 14, 2006
For:	NMR LOGGING USING TIME-DOMAIN AVERAGING	Attorney Docket No:	7420-081-999 (020243-999080)

**PETITION TO CORRECT FILING DATE AND DATE-IN DISCREPANCY  
UNDER 37 C.F.R. §1.10(c)**

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

cc: Certificate of Correction Branch

Sir:

In accordance with 37 C.F.R. §1.10(c), Patentee hereby requests a correction of an error in the filing date accorded to the above-identified application, discovered after the patent had issued.

The Patent Office erred in according this application a March 13, 2001 filing date, because the application was submitted via the U.S. Postal Service on March 12, 2001, bearing a proper Express Mail label. The error was perpetuated throughout prosecution, and the incorrect March 13, 2001 filing date appeared as item (22) on the first page of the above-identified patent.

It is believed that the Patent Office can correct the error by granting this petition to establish March 12, 2001 as the correct filing date for the above-identified patent application, and issuing the attached certificate of correction.

The facts are as follows:

APR 27 2007

Patent application Serial No. 09/803,819 ("the '819 application") was filed on March 12, 2001, and matured into the above-identified U.S. Patent No. 7,135,862.

Pursuant to 37 C.F.R. §1.10, the '819 application was filed with an Express Mail label and deposited with the United States Postal Service "Express Mail Post Office to Addressee" on March 12, 2001. Patentee encloses herewith the following documents that evidence that the '819 application was properly filed under 37 C.F.R. § 1.10 on March 12, 2001:

(Exhibit A) copy of a United States Postal Service Express Mail label bearing March 12, 2001 as the "Date In" and the Express Mail number EL 501 637 971 US, which is also date-stamped March 12, 2001 by the Grand Central Station Post Office;

(Exhibit B) copy of a return post card for the '819 application which bears the filing particulars of the '819 application, including Express Mail number EL 501 637 971 US, and which indicates March 12, 2001 as the mailing date, but which is erroneously stamped by the United States Patent and Trademark Office with the date March 13, 2001;

(Exhibit C) copy of the Utility Patent Application Transmittal bearing Attorney Docket No. 7420-0081-999, which was filed with the '819 application and bears the same Express Mail Number EL 501 637 971 US, indicating a deposit date of March 12, 2001;

(Exhibit D) copy of the Pennie & Edmonds Docketing Department Log, executed and dated by Phil Mannino on March 12, 2001 for a package that was addressed to the Assistant Commissioner for Patents, bearing Express Mail No. EL 501 637 971 US. Page 2 of the Log shows that the application bearing docket No. 7420-081 was among the contents of the package mailed on March 12, 2001; and

(Exhibit E) copy of the front page of issued U.S. Patent No. 7,135,862 B2, bearing an incorrect filing date of March 13, 2001 at item (22).

The Express Mail Number on Exhibits B and C as described above was placed on the respective document prior to the original mailing by Express Mail. Attached Exhibits A through E are true copies of the original Express Mail mailing label, return postcard receipt, originally mailed correspondence, docketing log, and the front page of the issued patent.

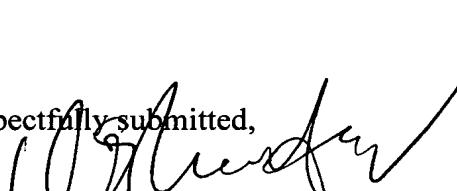
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Date: April 23, 2007

Respectfully submitted,

  
Ognjan V. Shentov

38,051

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 7,135,862 B2  
DATED : November 14, 2006  
INVENTOR(S) : Teruhiko Hagiwara

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At item "(22) Filed:" on the face of the patent, replace --Mar. 13, 2001-- with --Mar. 12, 2001--.

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7,135,862 B2

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Express Mail No. EL 501 637 971 US First Class Mail ( ) C  
Date Mailed March 12, 2001  
Ser. No. to be assigned Filed HEREWITH  
Inventor/Mark Teruhiko Hagiwara  
For NMR LOGGING USING TIME-DOMAIN AVERAGING

Utility Patent Application Transmittal cover sheet.

Patent Application Fee Value Sheet w/ Fee & photocopy of same.

Patent Application consisting of:

13 pages of Specification including Abstract;

28 Claims;

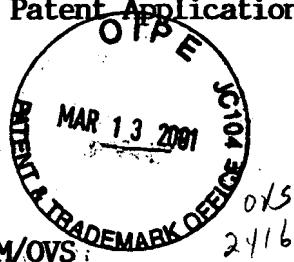
8 Sheets of Drawings - Figs. 1-8; and

executed Declaration for Non-provisional Patent Application.

Recordation Form Cover Sheet w/ Fee and  
executed Assignment.

Executed Power of Attorney by Assignee.

File No. 7420-081-999 Sender FEM/OVS



17 27 2001

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PTO/SB/29 (12/97)

Approved for use through 09/30/00. OMB 0651-0032

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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## UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	7420-081-999	Total Pages	23
First Named Inventor or Application Identifier			
Teruhiko Hagiwara			
Express Mail Label No.	EL 501 637 971 US		

### APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1.  Fee Transmittal Form  
*Submit an original, and a duplicate for fee processing)*
2.  Specification  
*(preferred arrangement set forth below)*
  - Descriptive title of the Invention
  - Cross Reference to Related Applications
  - Statement Regarding Fed sponsored R&D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings *(if filed)*
  - Detailed Description of the Invention (including drawings, *if filed*)
  - Claim(s)
  - Abstract of the Disclosure
3.  Drawing(s) (35 USC 113) [Total Sheets 8]
4.  Oath or Declaration [Total Sheets 2]
  - a.  Newly executed (original or copy)
  - b.  Copy from a prior application (37 CFR 1.63(d))  
*(for continuation/divisional with Box 17 completed)*  
*[Note Box 5 below]*
    - i.  DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33 (b).
5.  Incorporation By Reference *(useable if Box 4b is checked)*  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:  
 Continuation     Divisional     Continuation-in-part (CIP)    of prior application No: filed.

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Signature

Date: 3/12/01

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MORRIS, F SHENTOV	7420-065 <i>Q</i>	ISSUE FEE TRANSMITTAL W/COPY	<i>+</i>	<i>or</i>
POISSANT AZRIN	7960-137	PRELIMINARY AMENDMENT	<i>+</i>	
MARSHALL ROTHERY	618-860 <i>Q</i>	PET. FOR EXT. OF TIME UNDER 37 CFR 1.97(d) (2), AMENDMENT (RESPONSE TO OA DATED 1/11/01), INFORMATION DISCLOSURE STATEMENT W/REFS.	<i>+</i>	<i>or</i>
YOKOYAMA	5868-008 <i>Q</i>	PET. FOR EXT. OF TIME W/COPY, AMENDMENT (RESPONSE TO OA DATED 10/13/00)	<i>+</i>	<i>or</i>
POISSANT PASQUALE	8657-037 <i>Q</i>	NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES, TRANSMITTAL LTR, SEQUENCE LISTING	<i>+</i>	<i>or</i>
POISSANT PASQUALE	8657-038	NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING		<i>or</i>

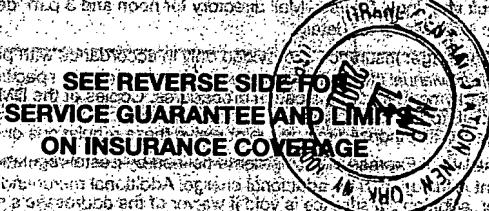
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INSOGNA GRAHAM	10624-009	INFORMATION DISCLOSURE STATEMENT, REVISED PTO FORM 1449 W/REF.AR-AT	<i>X</i>	<i>OK</i>
SHENTOV	7420-081 <i>WN</i>	UTILITY PAT APPLN TRANS SHEET, PAT APPLN SPEC.13 PGS.28 CLAIMS, 8 SHEETS OF DRAWINGS, EXECUTED DECL, POWER OF ATTORNEY & ASSIGNMENT, RECORDATION FORM COVER SHEET W/fee	<i>X</i>	<i>OK</i>
HOROWITZ	10211-003 <i>CD</i>	AMENDMENT, APPENDIX A, B & C, FEE TRANSMITTAL SHEET (IN DUPLICATE)	<i>X</i>	<i>OK</i>


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*APR 27 2001*



US007135862B2

(12) **United States Patent**  
**Hagiwara**

(10) **Patent No.:** **US 7,135,862 B2**  
(b5) **Date of Patent:** **Nov. 14, 2006**

(54) **NMR LOGGING USING TIME-DOMAIN AVERAGING**

(75) Inventor: **Teruhiko Hagiwara**, Houston, TX (US)

(73) Assignee: **Halliburton Energy Services, Inc.**,  
Houston, TX (US)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 23 days.

(21) Appl. No.: **09/803,819**

(22) Filed: **Mar. 13, 2001**

(65) **Prior Publication Data**

US 2002/0163334 A1 Nov. 7, 2002

(51) **Int. Cl.**

**G01V 3/00** (2006.01)

(52) **U.S. Cl.** ..... **324/303**

(58) **Field of Classification Search** ..... 324/300,  
324/303, 307, 309, 314; 702/79, 179

See application file for complete search history.

(56) **References Cited**

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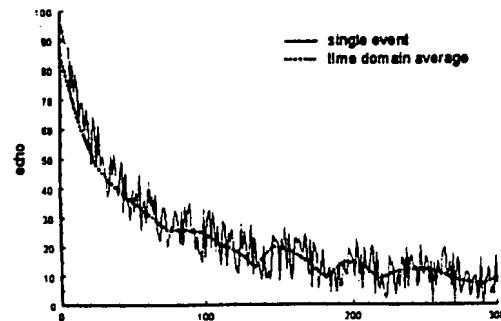
(Continued)

**Primary Examiner**—Diego Gutierrez  
**Assistant Examiner**—Dixomara Vargas  
(74) **Attorney, Agent, or Firm**—Jones Day

(57) **ABSTRACT**

Method for data acquisition and processing, which uses time-domain averaging to increase the signal to noise ratio (SNR) in single-event measurements. In a preferred embodiment, NMR echo-trains obtained using high-speed NMR logging are provided, the echo trains are time-domain averaged, preferably in real-time, over one or more time intervals to sharpen the spatial resolution of the logging tool and/or to increase the signal to noise ratio (SNR) of the data train.

**21 Claims, 8 Drawing Sheets**



Time-domain averaged echo-train data.

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Inventor:	Teruhiko Hagiwara	Art Unit:	2859
Serial No.:	09/803,819	Patent No.:	7,135,862 B2
Filed:	March 12, 2001	Issued:	November 14, 2006
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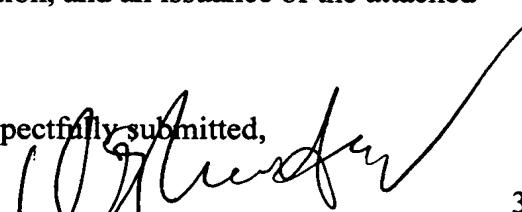
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Date: April 23, 2007

Respectfully submitted,

  
Ognjan V. Shentov

38,051

(Reg. No.)

**JONES DAY**

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 7,135,862 B2  
DATED : November 14, 2006  
INVENTOR(S) : Teruhiko Hagiwara

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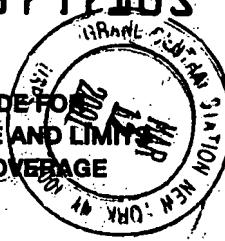
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Express Mail No. EL 501 637 971 US First Class Mail ( ) C-  
Date Mailed- March 12, 2001  
Ser. No. to be assigned Filed HEREWITH  
Inventor/Mark Teruhiko Hagiwara  
For NMR LOGGING USING TIME-DOMAIN AVERAGING

Utility Patent Application Transmittal cover sheet.

Patent Application Fee Value Sheet w/ Fee & photocopy of same.

Patent Application consisting of:

13 pages of Specification including Abstract;

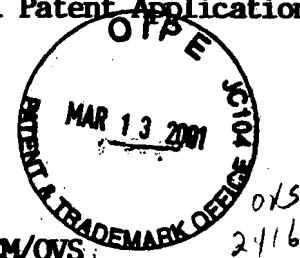
28 Claims;

8 Sheets of Drawings - Figs. 1-8; and  
executed Declaration for Non-provisional Patent Application.

Recordation Form Cover Sheet w/ Fee and  
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Executed Power of Attorney by Assignee.

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## UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	7420-081-999	Total Pages	23
First Named Inventor or Application Identifier			
Teruhiko Hagiwara			
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### APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1.  Fee Transmittal Form  
*Submit an original, and a duplicate for fee processing*
2.  Specification  
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  - Descriptive title of the Invention
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US007135862B2

(12) **United States Patent**  
**Hagiwara**

(10) **Patent No.:** US 7,135,862 B2  
**(45) Date of Patent:** Nov. 14, 2006

(54) **NMR LOGGING USING TIME-DOMAIN AVERAGING**

(75) Inventor: **Teruhiko Hagiwara**, Houston, TX (US)

(73) Assignee: **Halliburton Energy Services, Inc.**, Houston, TX (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 23 days.

(21) Appl. No.: **09/803,819**

(22) Filed: **Mar. 13, 2001**

(65) **Prior Publication Data**

US 2002/0163334 A1 Nov. 7, 2002

(51) **Int. Cl.**

**G01V 3/00** (2006.01)

(52) **U.S. Cl.** ..... 324/303

(58) **Field of Classification Search** ..... 324/300, 324/303, 307, 309, 314; 702/79, 179

See application file for complete search history.

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**Primary Examiner**—Diego Gutierrez

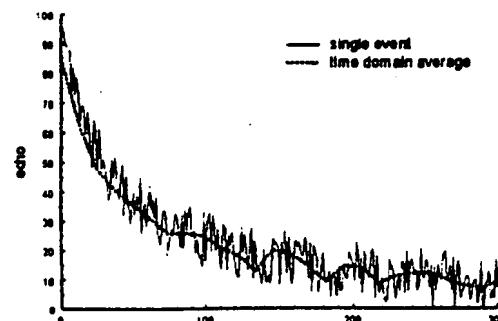
**Assistant Examiner**—Dixomara Vargas

(74) **Attorney, Agent, or Firm**—Jones Day

(57) **ABSTRACT**

Method for data acquisition and processing, which uses time-domain averaging to increase the signal to noise ratio (SNR) in single-event measurements. In a preferred embodiment, NMR echo-trains obtained using high-speed NMR logging are provided, the echo trains are time-domain averaged, preferably in real-time, over one or more time intervals to sharpen the spatial resolution of the logging tool and/or to increase the signal to noise ratio (SNR) of the data train.

**21 Claims, 8 Drawing Sheets**



Time-domain averaged echo-train data.

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